SOUTHWEST WASHINGTON HEALTH DISTRICT

IN THE SWIM

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ENTRAPMENT -A serious concern

All pool operators must be aware of the potential hazard of hair or body entrapment caused by drain covers in spas and pools. Hair entrapment is possible particularly from suction fittings located on the sides of pool walls. Most individuals can usually feel suction near their arms, legs, hips, etc. However, hair tends to flow more easily through a vortex created by an open drain or suction fitting without warning. The U.S. Consumer Product Safety Commission (CPSC) has reported deaths, in which hair was sucked into the suction fitting drain of a spa or pool, causing the victim's head to be held under water. The CPSC states that, "The suction from drain outlets is strong enough to cause entrapment of hair or body parts and drowning." Most accidents with drains or return inlets involve people with hair that is shoulder-length or longer. Hair entrapment occurs when a bather's hair becomes entangled in a suction fitting drain cover as the water and hair are drawn powerfully through the drain.

In several incidences, children were playing a "hold your breath the longest" game, leaning forward in the water and permitting their long hair to be sucked into the drain."

In September 1998, an 11-year old Kansas girl was trapped under water for 25 minutes after her leg was caught in a swimming pool drain. The young girl later died at a local hospital in Kansas City from drowning. Lifeguards and firefighters took turns giving her mouth-to-mouth resuscitation while desperately trying to free her from four feet of water. Later they used a garden hose in an attempt to get oxygen to her.

In May 1997, a sixteen-year-old girl was enjoying her High School graduation party at a local health club in New Jersey. She was trapped under water by the suction from a pump in one of the spas. The incident was witnessed by classmates and faculty who repeatedly tried to free the student but were unable to do so because of the powerful suction from the pump.

Pool drains can cause entrapment

In 1996, ABC's 20/20 aired a program on the dangers of entrapment hazards. They found that the suction power in a spa held a 40-pound ball to the bottom and that it took 400 pounds of lifting pressure to remove the ball.

As a reminder, main drains are designed to remove pool water from the pool and empty it either into the sewer system or recirculate it through the filtration system. Smaller outlets are also used to return water to the filtration system. Any of these outlets can cause a powerful suction. When, in the case of body entrapment, the pump cannot be turned off quickly, use your fingers to break the suction between the person's body and the main drain. Once the suction is broken, the person will be freed.

- **Ensure that main drain covers are in good condition and secured to the fittings. Drains on the sidewall must be anti-hair entrapment designed (IAMPO approved).**

Inside this issue:

Special points of interest

- Hair or body entrapment is caused by suction in drains in spas and pools
- Hair entrapment is possible particularly from suction fittings located on the sides of pool walls
- Children play "hold your breath the longest" and in several instances, they let their long hair be sucked into the drain

Your disinfection team: chlorine & pH Protection Against Recreational Water Illnesses (RWIs)

Protecting swimmers and their families from RWIs is the reason that pool staff regularly check both chlorine and pH levels. Chlorine and pH, your disinfection team, are the first defense against germs that can make swimmers sick.

What does chlorine do?

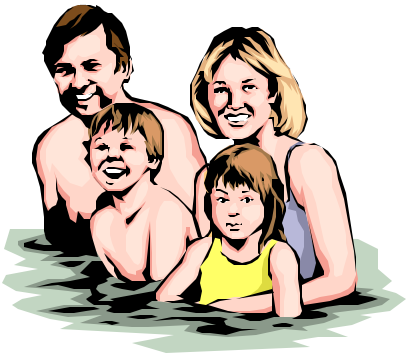
Chlorine kills germs in pools—but it takes time to work. Therefore, it's important to make sure chlorine levels are always at the levels recommended by the health department (usually between 1.5—6.0 ppm for pools and 3.0 to 10.0 ppm spas).

Why does chlorine need to be tested regularly?

All sorts of things can reduce chlorine levels in pool water. Some examples are sunlight, dirt, debris, and material from swimmer's bodies. That's why chlorine levels must be routinely measured. However, the time it takes for chlorine to work is also affected by the other member of the disinfection team, pH.

Why is pH so important?

Two reasons. First, the germ-killing power of chlorine varies with pH level. As pH goes up, the ability of chlorine to kill germs goes down. Second, a swimmer's body has a pH between 7.2 and 7.8, so if the pool water isn't kept in this range then swimmers will start to feel irritation of their eyes and skin. Keeping the pH in this range will maximize chlorine's germ-killing power and will minimize skin and eye irritation.



Check your chlorine and pH levels to protect swimmers

What else can be done to promote Healthy Swimming?

The best way to kill germs is by routinely measuring and adjusting chlorine and pH levels. Since a few germs can survive for long periods in even the best-maintained pools, it is also important that swimmers become aware of Healthy Swimming behaviors (don't swim when ill with diarrhea, don't swallow pool water, and practice good hygiene). Combining Healthy Swimming Behaviors with good chlorine and pH control will reduce the spread of RWIs.

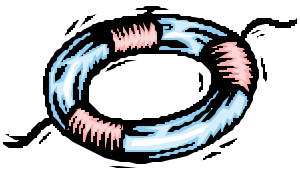
From CDC FACT SHEET

Making Your Pool Safer

Focus on Protection! Several changes can be made within your facility that will reduce the chance of spreading RWIs.

Educate your pool staff. Maintaining pool water quality according to existing public health requirements will prevent the spread of most RWIs.

Ensure that the pool operator, at a minimum, has taken part in a standardized training course given by aquatics professionals.



One is required, two is better (one at end of the pool).

Inform parents that unhealthy behaviors at poolside and elsewhere are no longer acceptable.

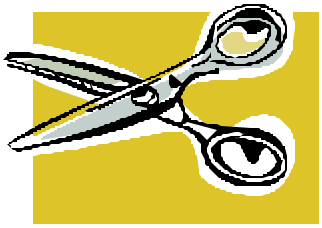
Consider implementing a short safety orientation for larger groups, especially those with young children, before they enter the pool complex, that includes education about RWIs.

Entrapment (cont.)

- Children should be supervised and told about the dangers of main drains.
- Keep long hair away from main drains and use bathing caps or pin up hair tightly.
- If a main drain cover appears to be the wrong size, of unapproved construction, broken, cracked, loose, or missing, the pool should be immediately closed and the problem corrected prior to reopening.
- Make sure that the emergency pump shut off switch in all spas is functioning properly and that it is well marked.

The suction power in a spa can hold a 40-pound ball to the bottom and takes 400 pounds of lifting pressure to remove the ball.

Have a pair of scissors handy in case of hair entrapment.



INSPECTION RESULTS

By far, the most frequent violation during routine inspections of pools and spas is the chlorine level — it is commonly either too high or too low.

"Test free chlorine at least three times a day."

Part of the problem are the erosion feeders that most apartment and motels are using. They feed at the same rate if there are 20 people in the pool or no people in it.

The best way to keep the chlorine level under control is frequent checking of the free chlorine (at least three times a day) with a DPD Test Kit. The "FAS—DPD" kit is the most accurate and has a wide range. It can test chlorine from 0.2 up to 40.0 ppm.

Water Quality	pH
Chlorine Disinfection Poor, Eye Irritation and Skin Irritation	>8.2
Most ideal for Eye Comfort and Disinfection	7.2—7.8
Eye Irritation Skin Irritation Corrodes Pipes Promotes Algae Growth	<6.8

Reducing Fecal Contamination

Bathrooms should be clean, a convenient distance from the pool to ensure use, stocked with toilet paper, and ample soap for hand washing.

There are actions you can take to reduce fecal accidents by helping parents get their children to the bathroom. For example: ensuring that bathrooms are clean, stocked with toilet paper, and have ample soap for hand washing.
It is important to use appropriate disinfection following fecal accidents.
So even if you are not required to do so, have a written fecal accident response policy (see Health District for copy of the policy).
This may help you respond more efficiently to problems. You may have little control over a toddler's soiling your kiddie pool, but you do have control over how you document and respond to this occurrence.

Remind parents to change diapers in the restroom.

Discount on your annual permit:

Facilities with a Certified Pool Operator (certified by The National Swimming Pool Foundation) will receive a $105.00 discount on their annual permit. *This is not a mandatory requirement*. To obtain this voluntary certification, you will need to attend a 2-day training workshop. One such training will be on May 10-11, 2002. Call Phil Oaks at 360-241-7665 for information.

*******Note:** the one-day workshop that the Health District puts on every year does not qualify the facility for the discount.*******

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We're on the web!
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About pools...

Q&A

Q I have something growing in my skimmer basket that looks ugly. How do I get rid of it?

A First, determine what it is. Is it algae? Algae will tend to grow on all or part of the surface of the water in the skimmer basket, and along the edges. It can look yellow, dark green or black in color. The best way to approach this is to make up a strong bleach solution. Use the bleach solution and a stiff brush to scour out the skimmer basket. Be sure to get into all the crevices where the algae grow. This treatment will also get rid of the *Pseudomonas bacterium*, which can cause a skin infection on bathers. Is it scum from a bather population that tends to use large amounts of body oils or creams? This will tend to coat the edges of the skimmer basket at the water line. It is usually gray in color and has a greasy or waxy feel. The best way to get rid of this is to scrub the skimmer basket with good old elbow grease using an abrasive sponge. Again, use a strong solution of bleach.

Q I can't figure it out. I have the chlorinator on my spa set midway and I can achieve a level of free chlorine between 3 and 10ppm for a day or two. Then it jumps way up beyond 10. I'm using the 1" chlorine tabs. Can you help?

A You might try switching to a seven-day chlorine stick in your chlorinator. These sticks are formulated to disperse the chlorine more slowly, so you will have an easier time in maintaining a more constant free chlorine level.

Q I'm having problems with my pool test kit. I can only get free chlorine readings up to 5ppm. Anything reading higher than that is just a guess. What should I do?

A You probably need to upgrade your test kit to one that uses a titration method. The Health District Inspectors use a "FAS-DPD" (TM) kit. With this type of kit, you can keep adding drops of reagent until the endpoint is reached. It will accurately test up to 40ppm. These kits are made by Taylor or Lamotte and are available at local pool and spa supply businesses.